

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>AP101466V311</b>	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/FI2003/000891</b>	International filing date ( <i>day/month/year</i> ) <b>19.11.2003</b>	Priority date ( <i>day/month/year</i> ) <b>19.11.2002</b>
International Patent Classification (IPC) or national classification and IPC <b>D21F 5/04</b>		
Applicant <b>Metso Paper, Inc. et al</b>		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (*sent to the applicant and to the International Bureau*) a total of \_\_\_\_\_ sheets, as follows:
 

☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).  
☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (*sent to the International Bureau only*) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input checked="" type="checkbox"/> | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

Date of submission of the demand  <b>27.05.2004</b>	Date of completion of this report  <b>14.02.2005</b>
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer  <b>Susanna Lindfors/BS</b> Telephone No. +46 8 782 25 00

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2003/000891

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ the international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2003/000891

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	<u>1 - 14</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1 - 14</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1 - 14</u>	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

The invention relates to a sealing arrangement against a moving fabric in a paper machine comprising a labyrinth sealing element, which sealing element is arranged on a support so that the location of the sealing element with respect to the fabric can be adjusted.

Reference is made to the following documents:

D1: WO 9848109 A1  
D2: EP 0566552 A1  
D3: DE 4314475 A1  
D4: US 6192597 B1

D1 discloses a blow box used in the drying section of a papermaking machine and a method for sealing a pocket provided with a blow box. The blow box is arranged to eject air away from the space between the supporting fabric and the blow box and/or to maintain an underpressure zone in this space. The sealing blow nozzle disclosed in D1 comprises a stationary frame and an actual, turning nozzle element joined to it with a link (58). The nozzle is preferably provided with a spring or some other transfer element, with which the nozzle part (50), which forms the sealing element, may flexibly be kept pushed towards the wire (figs. 4 and 5). The sealing element may also be attached to an actuator (80) which transfers the element a short distance away from the wire, for example, for the duration of tail threading, when it may be expected that wrinkled paper and paper clods run along with the wire more than usual (fig. 3).

.../...

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

D2 discloses a papermaking machine compact drier, comprising a row of drying cylinders (10) and a row of leading rolls (12) with a gap (T) between each of the two adjacent cylinders (10) and their cooperating leading roll (12). Each gap contains a stabilizer (20) with a nozzle (21) to provide air flow (F) against the direction of travel of the paper web on a drying wire (11). The air flow entrains air and ejects it from the gap. The negative pressure thus produced keeps the web attached to the drying wire. The stabilizer is sealed against the leading roll by a labyrinth seal. With a labyrinth sealing, the capacity (negative pressure) can be increased by about 15 %.

D3 discloses a sealing bar structure (28, 29) at a deflection roller for roller surface recesses to generate negative pressure without roller suction. The sealing bars (28, 29) described in D3 can form a labyrinth sealing.

D1 is considered to represent the closest prior art.

The sealing arrangement according to claim 1 differs from the sealing arrangement disclosed in D1 in that the sealing element is a labyrinth sealing.

However, in the arrangement disclosed in D1, air is led away from the pocket space by suction ejection effect caused by ejection blows, forming an underpressure zone. A person skilled in the art realises that it is not possible to use a labyrinth seal in a blow box of this type, as it would not be able to lead air away from the pocket space and create an underpressure zone therein.

Therefore, although it is previously known from D2 or D3 to use a labyrinth sealing in order to improve the efficiency of the sealing, a person skilled in the art would not have been able to arrive at the present invention by combining documents D1 and D2 or D1 and D3.

Further, both D2 and D3 disclose the use of a labyrinth seal against a cylinder, whereas in the present invention, the sealing element is used against a moving fabric.

.../...

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

Consequently, upon reconsideration, the invention is not considered to be obvious to a person skilled in the art by combining documents D1 and D2 or D1 and D3.

Neither does D4 give any indication that would lead a person skilled in the art to the claimed sealing arrangement.

Consequently, the invention according to claims 1 - 14 is novel and considered to involve an inventive step. The invention fulfils the requirement of industrial applicability.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FI2003/000891

**Box No. VI** Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
US 20030034139 A	20.01.2003	26.07.2002	20.08.2001

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)